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The developmental scheme of the systems approach could be applied effectively to the design of foreign language teacher education. After the performance objectives had been formulated and the learning tasks analyzed and characterized, the design of the system could be undertaken. This would involve--(1) functions and component analyses, (2) the selection of alternative components to accommodate group and individual differences, and (3) scheduling of functions and components in time and place. System integration could be accomplished by the processes of feedback, feedforward, and by the deliberate interrelating of subsystems and subordinating of the subsystems to the system objectives. As the system was installed and implemented, evaluation by monitoring and performance testing could constantly oversee and test the operation of the system and the adequacy of the product. The application of the systems approach promises extraordinary potential for improving and stabilizing, at a high professional level, the training of foreign language teachers. (Author/AB)

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The Design of Foreign Language Teacher Education

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THROUGHOUT the last several years the concept of "systems" has had an increasing impact on education. This concept denotes deliberately designed entities, comprised of parts, which are interrelated and designed to interact in order to attain predetermined purposes. In designing a system, the main concern is to ensure that all its parts will function and interact in a way to lead to the achievement of the purpose for which the system is built.

Education can surely be considered a system in the sense described here. To be a system, however, parts of an educational program are to be integrated into a unified whole by developing them around the purpose of the educational system and by planning their interaction in a way to ensure the accomplishment of that purpose.

The education of foreign language teachers can also be conceived as a system. As a rule, however, teacher education programs have not been built as systems. In the typical setting of higher education, the future teacher takes courses in the particular foreign language and literature. He usually receives some training in methodology. He may also take some courses in applied linguistics. Conducted in different and unrelated departments, these courses have purposes specific to the particular discipline they represent and seldom, if ever, are they worked into an interacting pattern of common design.

The specific methodology which provides for the building of integrated systems is called the systems approach.[1] A decision-making struc-

[1] The general application of this approach to the plan-

ture and strategy, the systems approach offers a self-correcting and logical process for the planning, development, and maintenance of systems. A system is designed around a specific purpose by first analyzing the way the functioning of its parts will affect the performance of the whole. Such analysis is the basis upon which synthesis commences and a system is built in which the functioning and interaction of components are designed in a way to ensure the expected and specified system performance.[2]

Applying this approach to the design of foreign language teacher education, first we must clarify the purpose around which to build the training program. Once we have formulated a purpose, we can proceed with its specification. A continuing specification of whatever the teacher trainee is expected to be able to know, do, and feel as an outcome of his learning will lead to the formulation of objectives. Next we identify whatever the future teacher has to learn in order to be able to perform the way described in the objectives. Knowing what has to be learned, we can now ask the question: What has to be done, how, by whom, when, and where, in order to achieve learning? Thus we design an instructional system. Before installing the system, we need to test it and train its components. As implementation progresses, continuous evaluation oversees the operation of the system. At the same time, the performance of the trainee is measured against stated objectives. If we find that his performance does not meet stated expectations and that such deficiency is not an individual one but rather attributable to the system, we must introduce changes in the system in order to ensure the eventual attainment of objectives. The information in Diagram 1 presents the four major developmental phases of an instructional system.

The four phases denote four sequential steps, and the feedback line indicates the closed looped nature of systems development. Let us apply this four-phased scheme to the design of foreign language teacher education programs.

Formulation of Performance Objectives

The designing of a teacher training program should commence with a detailed analysis and description of the on-the-job performance of the foreign language teacher. A detailed description of the job performance will become the basis for formulating training objectives. One of the reasons for the great variations in quality and quantity of current foreign language teacher training programs is that existing programs are usually based on some vague generalized goals, rather than on a detailed analysis of the actual performance of the teacher.

On the other hand, if we systematically observe what the foreign language teacher actually is to do in the foreign language class, and if we describe this performance in specific terms, then we have a valid line of departure for building a program which will eventually lead to the attainment of the kind of performance desired and described.[3]

The formulation of objectives is a process of gradual and ever more detailed specification of expected outcomes. First, some broad statements are framed which then we continue to make ever more specific, until we reach what is

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ning, development, and implementation of educational programs is described in Bela H. Banathy, *Instructional Systems*, Palo Alto, California: Fearon Publishers, 1968. Its application to the teaching of foreign languages appears in Bela H. Banathy, "The Systems Approach," *The Modern Language Journal*, Vol. LI, No. 5 (May, 1967), pp. 281–289.

[2] The roots of the systems approach are set in the scientific method and it has emerged from an eclectic use of principles from such diverse fields as logic, philosophy, psychology, cybernetics, and other disciplines. Its orderly design of procedures and strategies, its approach to the selection and integration of resources, its insistence upon optimization of functions and components appear to be characterized by common sense. In fact, the shortest definition which can be suggested for the systems approach is that it is *common sense by design*.

[3] Studies discussing performance descriptions include:

(a) Theodore Andersson, "The Teacher of Modern Foreign Languages" in Ernest Stabler (editor), *The Education of the Secondary School Teacher*, Middletown, Connecticut: Wesleyan University Press, 1962. pp. 164–190.

(b) Emma Birkmaier, "Evaluating the Foreign Language Program," *The North Central Association Quarterly*, Vol. XL, No. 3 (Winter, 1966), pp. 263–271.

(c) Joseph Axelrod, *The Education of the Modern Foreign Language Teacher for American Schools*, New York: The Modern Language Association, 1966.

(d) F. André Paquette (editor), "Guidelines for Teacher Education Programs in Modern Foreign Languages—An Exposition," *The Modern Language Journal*, Vol. L, No. 5 (October, 1966), pp. 323–425.

MAIN PHASES OF THE DESIGN

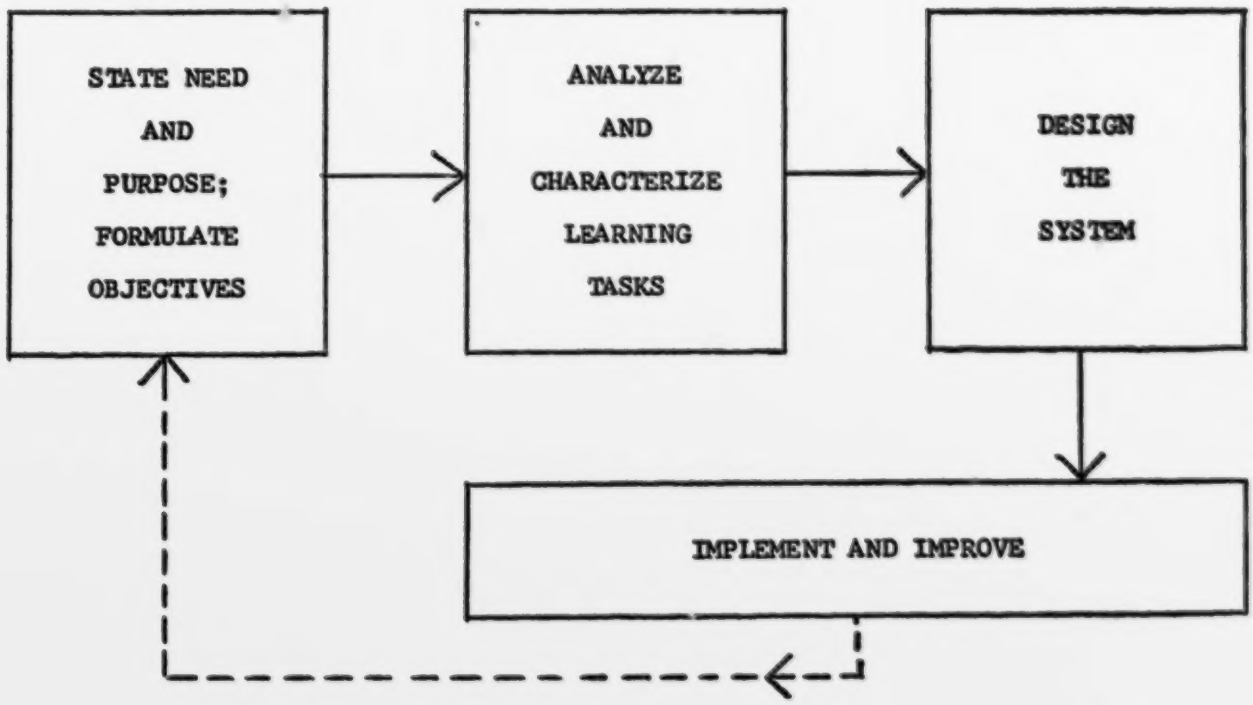
STATE NEED AND PURPOSE; FORMULATE OBJECTIVES
ANALYZE AND CHARACTERIZE LEARNING TASKS
DESIGN THE SYSTEM
IMPLEMENT AND IMPROVE
-------- Feedback Line

DIAGRAM 1

called by Gagné[4] the task level. We need to state in terms of the smallest independent unit of performance whatever the future teacher is expected to be able to do, know, and feel. We furthermore need to state in measurable terms, to the maximum possible degree, how well the teacher is expected to perform. The stimuli which are to evoke his performance, the circumstances and constraints under which he is expected to perform should also be described.

With very few exceptions, current statements of objectives for teacher education usually denote the out-of-class, rather than the in-class performance of the teacher. For example, the so-called "minimal objectives" introduced in the *Guidelines* describe out-of-class performance of the teacher; namely:

ability to understand lectures and news broadcasts,

ability to talk with a native,

ability to read with immediate comprehension prose and verse, and

ability to write a simple "free composition" such as a letter or message, etc.[5]

These statements do not describe classroom performance but are only the necessary basis for it. Very seldom will a teacher listen to someone lecturing in his class, or converse with a native in the classroom; read prose or a verse to his class which he has not read before, or write a letter in the foreign language in class.

A statement of objectives for a teacher-education program should first and foremost describe the performance expected of a teacher in the classroom. Unless we have such performance-oriented objectives, our program may be developed in a vacuum; it may not be valid, and it will not likely be relevant to the task of teaching a foreign language. I shall demonstrate this point with an example.

[4] Gagné defines this task level of degree of specificity as that of ". . . the smallest unit of performance which can be identified as having a distinct and independent purpose." Robert M. Gagné, "Educational Objectives and Human Performance" in J. D. Krumboltz (editor), *Learning and the Educational Process*, Chicago: Rand-McNally, 1965, p. 12.

[5] Paquette, *op. cit.*, p. 343.

In formulating a sample objective, I shall state:

1. the particular stimulus which brings about the behavior of the teacher;
2. the expected performance of the teacher, formulated as much as possible on observable terms;
3. how well, and
4. under what conditions and constraints this performance is expected to be carried out.

I shall describe the expected comprehension competence of the teacher trainee.

In the foreign language class the teacher will need to be able to comprehend two kinds of language: recorded materials prepared for the learner and the utterances of students.

Objective: Comprehending Recorded Materials

Circumstances and stimulus: While conducting a foreign language class, and while introducing and using recorded materials,

Observable teacher behavior: The teacher will demonstrate his understanding of these recorded materials by:

repeating utterances which are of the closed repertory kind and conveying their meaning by acting out, explaining and/or translating (whichever is appropriate);

rephrasing the non-closed-repertory kind of utterances in order to convey their meaning or, if needed, by acting out, explaining, translating (whichever is appropriate).

Accuracy: The teacher will understand all of the recorded materials he introduces in the classroom and will be able to demonstrate his comprehension by employing one of the alternative response modes described above. (The question of which alternative is the best is one of competence in methodology, rather than in comprehension.)

Objective: Comprehending the Student

Circumstances and Stimulus: While conducting a foreign language class or a language laboratory session, and in response to the utterances made by the student directly to him or to another student, or while monitoring the student's verbal responses in the language laboratory or in the electronic classroom;

Observable teacher behavior: Upon comprehending the utterance of the student:

the teacher will identify—with a predetermined signal—whether the student's verbal expression is within the range of performance expected of him, or

the teacher will signal to the student whenever he deviates from this performance expectation and will identify the particular error by correcting the student.

Accuracy of Performance: While listening to the utterances of a student, the teacher will identify at least eight out of ten errors made by the student. (This performance standard is probably arbitrary, but it appears to be both realistic and measurable.)

The objective described above is only a portion of an objective for auditory comprehension. Furthermore, comprehension constitutes only one of several competence areas in language acquisition and, of course, language acquisition is only one of the many domains of foreign language teacher training. Developing objectives for a teacher training program is a complex and involved task. The outcome of this endeavor will be a voluminous statement comprised of several sets of objectives arranged within an over-all objective structure, and within each set, providing for a continuous refinement of performance specifications.

A performance objective must be stated in both measurable and operational terms. "Measurable" means that standards of expected performance are clearly indicated so that a test can be constructed which will measure the actual performance of the teacher trainee. The term "operational" implies that the objective is formulated with a high enough degree of specificity, enabling the designer to move on to the next step and begin with an analysis of learning tasks.

Analysis and Characterization of Learning Tasks

This analysis and characterization constitute the second main phase of the design of an instructional system. It aims to identify the competences—the specific abilities, skills, knowledge, and attitudes—which the future foreign language teacher has to acquire in order to be able to perform in the way expected of him. The complexity of this analysis depends upon the nature of the expected performance. If

the expected performance is to produce some new sounds, the learning involved is the copying type, and a statement of the expected performance may directly reveal the learning task. Most of the performance we want to bring about in teacher trainees, however, falls within the cognitive and affective domains. In these domains, a statement of performance expectations will rarely, if ever, denote learning tasks, and the learning task has to be uncovered, deduced from an examination and analysis of the performance itself.

The outcome of this analysis will be a great number of items. A logical ordering of items will be guided by the question: What has to be acquired before one can undertake the learning of a specific item? In pursuing this query, the designer will place items in an inventory according to prerequisites. In most cases we will find that the teacher trainee already had acquired some of the relevant capabilities; therefore, he need not undertake the learning of all the items in the inventory. We call these relevant capabilities the input competence. The appropriate measurement of the input competence is significant on two counts. First, it will ensure that the individual will not be engaged in the learning of something which he already knows. Second, it will prevent an error in calculation, as often we take for granted certain input capabilities which are not present. The measurement of input competence will help to locate the proper point of departure in learning. If this point is less than the expected level, we can provide for a pre-entry program. If this point is above the expected, we can apply advance placement.

What has to be hurdled as actual learning tasks will be the difference between the items in the inventory of learning and the relevant-to-the-inventory input competence.

Once learning tasks are identified, they need to be characterized. Characterization implies two operations. First, we are to specify the type of learning the acquisition of each learning task requires. Is it response learning, chain, multiple discrimination, concept learning, or is it the learning of principles or problem solving?[6] Second, the difficulty which the hurdling of a learning task may present needs to be assessed.

The main steps of the analysis and characterization of learning tasks are:

A. Inventory of Learning
B. Assessment of Input Competence
C. Identification of Actual Learning Tasks (C=A−B)
D. Characterization of Learning Tasks (type of learning and difficulty of mastering the task)

To demonstrate the analysis and characterization of learning tasks, let us return to the objective of developing a comprehension competence in the target language. Having a specific language in mind for the future teacher, one of the learning tasks in this task area may be to learn to comprehend the grammatical signal of plural. A contrastive analysis of the two languages involved has indicated that in forming the plural there are certain similarities between the two languages, inasmuch as the meaning of plural exists in both languages and in both it is expressed by the same medium, namely, by suffixes. There are, however, specific differences between the expected input capability and the desired performance. The items used to signal plural in the target language, and the structure and distribution of these items are different from those used in the native language. The mastering of these differences will constitute the task of learning to comprehend the plural sign. The characterization of learning tasks will indicate that the learning of these tasks is the type we call principle learning and, based on error analysis, there may be available quantification data which denote the degree of difficulty of mastering these tasks.

Designing the System

After the performance objectives have been formulated and the learning tasks have been analyzed and characterized, the design of a system, the third major phase of system development (see Diagram 1), can be undertaken. The design of an instructional system for teacher trainees is guided by the following inquiries:

What has to be done, and how, so that the

[6] These different types of learning are described by Robert M. Gagné, *The Conditions of Learning*, New York: Holt, Rinehart and Winston, 1965.

teacher trainee will master the learning tasks? (*Functions Analysis*)

Who or what has the capability of doing whatever has to be done? (*Components Analysis*)

How can we best distribute functions among components? (*Distribution*)

How can we best schedule—in time and place—the carrying out of functions by the components selected? (*Scheduling*)

Thus, (1) Functions Analysis, (2) Components Analysis, (3) Distribution of Functions Among Components, and (4) Scheduling, are the four major strategies of the design phase.

1. Functions Analysis

In designing the system, the first step is to identify the functions which need to be accomplished in order to provide optimum conditions and environment for the mastering of learning tasks. These functions include:

selection and organization of content through which to confront the learning tasks,

selection and organization of learning experiences in which the content is presented,

motivation and management of the teacher trainee, and

continuous assessment of his learning and of the operation of the system.

In selecting and organizing content for foreign language teacher training, we will probably find that in relationship to most of the learning tasks, there will be a large number of content items from which to select. Going back to the learning task of comprehending the plural form, such questions arise as: Of the allomorph-set of plural forms, which one should I select and in what order? What kind of utterances, with what sounds, forms, and arrangement patterns, of what complexity, should I select? Which is the most frequent, the most readily available? The most useful? What is its range of coverage and its learnability? What lexical items and situational contexts provide me with an optimum representation of the learning task?

Content is introduced through learning experiences. In the case of learning the use of the plural sign, questions which need to be answered may include such as: How can I best demonstrate the sound change which stands for the plural sign? How can I best convey whatever meaning this change represents? How can I enhance the discovery that this meaning is the (grammatical) meaning of plural? How can I help to generalize the function of this sign so that it will be readily comprehended in other utterances in which this sign is used?

The next step of functions analysis is the management of the teacher trainee. How can I keep him optimally involved in learning? What would motivate him the most? Are there particular situational contexts which may attract him more than some others? How much motivational force would be generated, for example, by sharing with him the statement of objectives? Finally, we have to provide for a continuous monitoring of the system and for the assessment of the trainee's progress.

Throughout the processes of functions analysis, the designer will seek and explore alternatives in content, learning experiences, motivation, and assessment. Only by considering curriculum alternatives and making appropriate selections can he optimize functions. Curriculum alternatives have to be made available to meet individual differences in input capabilities, in aptitude, in rate of learning, in the span and type of interest, in learning style, mode, and level of learning. For all practical purposes, each trainee requires a system of his own.

2. Analysis of Components

The outcome of functions analysis is a clarification of what the system should do to facilitate the mastering of learning tasks. Once this is clarified, we need to determine who or what should do whatever there is to be done. We need to determine the capabilities required for the carrying out of functions and then consider alternatives which have the capabilities required.

Finally, we need to design the interactions of selected components in order to ensure the optimum attainment of specific functions. For example, in designing a program for the perception of the plural sign, what components are the best to demonstrate to the teacher trainee the difference in sound between utterances in which singular vs. plural is used? Should this be a group or an individual experience? What or who should produce the utterances? Should the set

of utterances be recorded? If the utterances are also to be coded graphemically, how should this be done? Should we use printed charts, slides, the blackboard, substitution frames, colored letters? Considering these and other possible alternative components, how can we *design* an *optimum interaction* of components? Components have to interact in an integrated fashion to ensure the optimum attainment of the specific function for which they are being designed.

3. Distribution

As an outcome of component analysis, the designer will have available sets of alternative components for each function. From these he will select more than one component in order to accommodate group and individual differences. In selecting components, the resources available to the system have to be considered. For example, in presenting the sound contrast between the singular and plural forms through a set of utterances, a decision for individual versus group presentation of recorded utterances will be influenced by resources available to the system. (Individual presentation will be possible only if we can have for each trainee separate recorded audio-delivery capability.)

In making decisions about distributing functions among components, we want to achieve the most with the least.

The designer cannot select a component, regardless of how effective it is, if the system cannot afford it. On the other hand, he cannot employ a component, regardless of how economical it is, if it cannot guarantee the attainment of the objective of the system. As an outcome of distribution, specific functions are assigned to components in a way to ensure optimum conditions for the mastering of learning tasks and for the attainment of stated objectives.

4. Scheduling

The last design strategy is to schedule functions and components in time and place. Within the framework of our example, the designer needs to ensure that the personnel involved and the media selected for the presentation of the plural sign will be available at the place and at the time and for the duration needed, with the specified characteristics and capabilities required so as to ensure the mastering of the learning task.

System Integration

The central thesis of the methodology advanced in this article is that the most effective way to develop instruction is to: (1) build it around specific performance objectives, and (2) design it as a system. The implementation of these two premises will ensure the attainment of the purpose for which the system is constructed.

Throughout the course of this systems development process, at every successive step of the analysis and design, the question was asked: How does what I am considering to do ensure the attainment of the purpose for which the system is built? This iterate relating back to the purpose is one aspect of the strategy we call *feedback*. Feedback is one of the strategies by which we can ensure the integration of the system. There is also, however, another "feed" strategy which is of anticipatory nature. At any particular stage of systems development we are making design decisions, not only in relationship to the purpose for which the system is built, but also in view of what lies ahead of us. This looking ahead is what we may call "feedforward." The difference between the two "feeds" is that feedback is to verify and validate, it is a way to control by monitoring our response to a specific commitment—the objective—while feedforward is speculatory and noncommittal. For example, as the system designer considers a set of alternative learning experiences in which to present a specific content item, he may speculate about components which might provide for these experiences. What is important here is that operating in the functions analysis stage, even though he may have a feeling for some components, the designer should not yet make a decision for the use of a specific component. Systems development is never one-directional, but it is the function of iterate procedures of back and forhf moves and the simultaneous applications to design building and design integration.

In addition to the feedback and feedforward, there is another strategy which needs to be explained. This strategy is to ensure the by-

design interaction and integration of subsystems. Integration cannot be left to chance. Only a deliberate design effort will guarantee that subsystems will make their specific contribution toward the goal of the system, that they will achieve their specific objective, and that they will also enhance the effectiveness of their peer systems.

To demonstrate the integration of subsystems, let us consider the building of a teacher education system around the purpose introduced in the *Guidelines*;[7] namely: "Develop in students a progressive control of the four language skills." Let us suppose that we have analyzed this purpose and, through a process of gradual specification, we have formulated a set of objectives. Based on objectives, we conducted an analysis of learning tasks and, as an outcome, we have arrived at sets of learning tasks. Let us further suppose that we have arranged those tasks—according to the concept of prerequisites—into a sequence, and established a logical structure of task areas. Diagram 2 presents a hypothetical arrangement of major task areas. These task areas are to be considered potential subsystems of a foreign language teacher training system.

Both the structure and the task areas introduced in Diagram 2 are hypothetical. Still, they imply the complexity of the problem we face in designing a system for the training of foreign language teachers. The problem of the design is dual: (1) to build, within the boundaries of task categories, curriculum subsystems and, at the same time, (2) to integrate these subsystems into the subsuming system so as to ensure (a) that the subsystems will produce competence specific to their own objectives, and (b) that they will mutually support and enhance each other and thus produce teachers with predetermined performance capabilities.

During recent years, noteworthy advancements have been made toward the improvement of foreign language teacher education. Borderlines between relevant disciplines have been crossed. In some cases, a healthy give-and-take has been introduced between departments involved and organizational structures have been realigned. But all these developments, important as they are, are still not enough. As implied by the systems concept, we will not only cross, but transcend borderlines established between disciplines; we need to not only correlate, but also integrate interests traditionally vested in individual departments; not just realign, but redesign organizational structures. By the application of the systems concept, a new comprehensive framework, a new curricular, instructional, administrative, multi-disciplinary, multi-resource system will emerge which will enable us to evolve not only a coordinated, but a unified design of foreign language teacher education.

All these can come about only from a deliberate design effort. The purpose around which to build this new system of teacher education needs to be clearly defined and, an over-all objective needs to be formulated for the total system, and subsystems developed in view of this objective. Specific objectives of subsystems will be established in relationship to the objective of the total system. Diagram 3 depicts this system-subsystem relationship.

The subsystems depicted in Diagram 3 do not mean to suggest specific courses, but possible subsystems of a foreign language teacher education system.

System integration is accomplished by the processes of feedback, feedforward, and by the deliberate interrelating of subsystems and subordinating the subsystems to the system objective. The effectiveness of the employment of these processes will be put to actual test as the system development effort moves into the final phase, as the system is tested, trained, and finally installed. (See Diagram 1.)

Installation

Before it can be put into operation, the system has to be subjected to a thorough preinstallation exercise of training and testing. System training aims to bring the performance of the system's components up to the level required for the effective and efficient discharge of their assigned functions. Preinstallation testing serves three purposes. First, it gathers evidence to assess the adequacy of the system. Can it perform the functions for which it was designed? Can it deliver the product with the performance capability described in the objective? Second, it aims to identify weak points

[7] *Op. cit.*, p. 342.

A MACRO-STRUCTURE OF TASK AREAS

A. EXPECTED INPUT COMPETENCE* (a) UNDERSTANDING-SPEAKING-READING AND WRITING OF THE NATIVE LANGUAGE OF THE LEARNER; (b) INFORMATION ON THE LINGUISTIC SYSTEM OF THE NATIVE LANGUAGE; (c) ABLE TO BEHAVE ACCORDING TO THE NATIVE CULTURE OF THE LEARNER; (d) CULTURAL AND AREA-BACKGROUND INFORMATION RELEVANT TO THE STUDENT'S AREA; (e) KNOWLEDGE OF LITERATURE WRITTEN IN THE STUDENT'S NATIVE LANGUAGE.

B. TASKS RELATED TO: (a) THE UNDERSTANDING-SPEAKING-READING AND WRITING OF THE TARGET LANGUAGE; (b) INFORMATION ON THE LINGUISTIC SYSTEM OF THE TARGET LANGUAGE; (c) ABILITY TO BEHAVE ACCORDING TO THE TARGET CULTURE; (d) CULTURAL AND AREA-BACKGROUND INFORMATION OF TARGET AREA.
PREREQU: A

C. TASKS RELATED TO ACQUIRING: (a) INFORMATION ABOUT THE NATURE OF LANGUAGE; WHAT LANGUAGE IS; (LINGUISTIC, REFERENTIAL, & SEMANTIC SYSTEMS); HOW LANGUAGE WORKS; (THE PROCESSES OF LANGUAGE USE); HOW LANGUAGE IS USED;(REGISTERS, STYLES & LEVELS); (b) INFORMATION ABOUT THE NATURE OF CULTURE. THE COMMUNICATION ASPECTS OF CULTURE.
PREREQU: A & B

D. TASKS RELATED TO KNOWING THE: FINDINGS OF CONTRASTIVE (a) LINGUISTIC AND (b) CULTURAL ANALYSES. RECOGNITION OF LEARNING HURDLES.
PREREQU: A, B & C

E. TASKS RELATED TO KNOWING ABOUT: (a) THEORIES OF LEARNING & HUMAN DEVELOPMENT;(b) THEORIES OF INSTRUCTION; (c) KINDS OF LEARNING; (d) CHARACTERISTICS OF LEARNER; (e) FINDINGS OF RESEARCH IN AREAS (a), (b), (c) AND (d).

F. TASKS RELATED TO THE LEARNING OF: (a) PROCESSES AND STRUCTURES OF LANGUAGE LEARNING (PSYCHOLINGUISTICS); (b) KINDS OF LEARNING IN LANGUAGE LEARNING; (c) FINDINGS OF PSYCHOLINGUISTIC RESEARCH AND RESEARCH IN LANGUAGE LEARNING.
PREREQU: A,B,C & E

G. TASKS RELATED TO KNOWING HOW TO: (a) SELECT (OR DEVELOP) INSTRUCTIONAL MATERIALS; (b) SELECT (OR DEVELOP), ADMINISTER, AND EVALUATE TESTS OF STUDENT PROGRESS, DIAGNOSE DEFICIENCIES; (c) CORRELATE THE SUBJECT WITH OTHER SUBJECT AREAS OF THE CURRICULUM.
PREREQU: A,B,C,D,E & F

H. TASKS RELATED TO THE LEARNING OF: (a) APPROACHES, METHODS AND TECHNIQUES OF FOREIGN LANGUAGE INSTRUCTION; (b) UTILIZATION OF MULTIMEDIA; (c) FINDINGS OF RESEARCH IN FOREIGN LANGUAGE INSTRUCTION; (d) CLASSROOM MANAGEMENT; STUDENT-TEACHER INTERACTION ANALYSIS.
PREREQU: ALL ABOVE

I. TASKS RELATED TO KNOWING HOW TO: (a) SELECT AND ORGANIZE LEARNING EXPERIENCES; DESIGN LEARNING STRUCTURES AND TEACHING STRATEGIES; (c) DEVELOP STANDARDS OF TEACHING PERFORMANCE; (d) CONDUCT FOREIGN LANGUAGE CLASSES.
PREREQU: ALL ABOVE

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* IT IS ASSUMED THAT THE TEACHER IS A NATIVE SPEAKER OF THE STUDENT'S LANGUAGE. IF THE TEACHER IS A NATIVE SPEAKER OF THE TARGET LANGUAGE, THEN "B" BECOMES "A" AND "A" BECOMES "B" IN THE SEQUENCE.

DIAGRAM 2

SYSTEM-SUBSYSTEM INTEGRATION

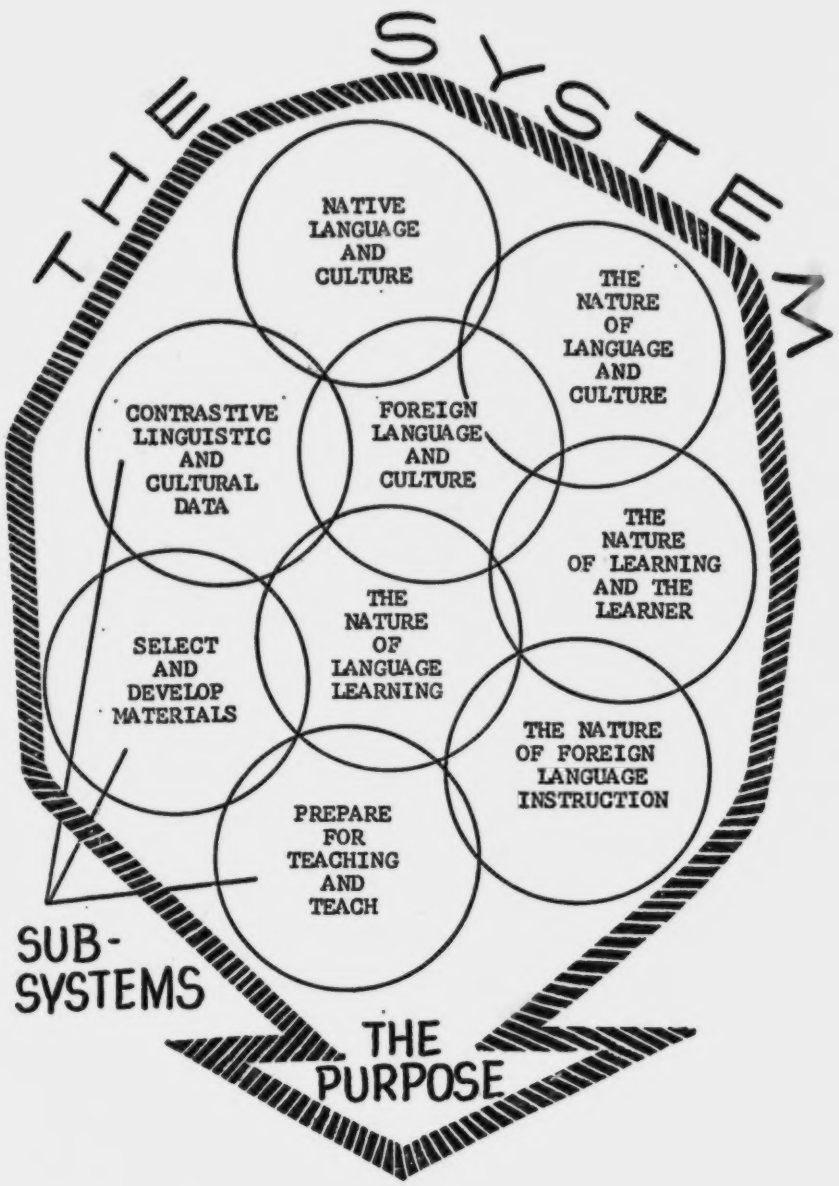
THE SYSTEM
NATIVE LANGUAGE AND CULTURE
THE NATURE OF LANGUAGE AND CULTURE
CONTRASTIVE LINGUISTIC AND CULTURAL DATA
FOREIGN LANGUAGE AND CULTURE
THE NATURE OF LEARNING AND THE LEARNER
SELECT AND DEVELOP MATERIALS
THE NATURE OF LANGUAGE LEARNING
THE NATURE OF FOREIGN LANGUAGE INSTRUCTION
PREPARE FOR TEACHING AND TEACH
SUB-SYSTEMS
THE PURPOSE

DIAGRAM 3

which need to be changed and strengthened. Third, pre-installation testing has to furnish the system manager with data, based on which he will decide to install (or not to install) the system. It is far more reasonable and economical not to install, but even to eliminate, or at least redesign the system, rather than to install one which, based on the evidence of pretesting, does not promise to produce in the expected way. A question which begs to be asked here is: Just how much pretesting has been done in the field of foreign language teacher training; and what evidences, if any, have been sought, produced, and accepted, before programs of foreign language teacher education were established?

The only satisfactory way to test an instructional system is to install it on a trial basis and test it against clearly stated objectives. Pilot programs need to be established and the performance tested against output specifications.

As the system is installed and implemented, evaluation will continuously oversee both the operation of the system and test the adequacy of its product. The first kind of evaluating is called *system monitoring*; the second, *performance testing*. System monitoring is a continuation of the feedback process which we have already discussed and which has operated during systems development. The purpose of system monitoring is at least four-fold:

to eliminate that which serves something other than the established system objectives;

to disclose system parameters which are lacking or which are ill-defined, and thus make less than the required contribution;

to suggest ways to perfect the integration of the system; and

to suggest ways to improve the economy of the system.

Performance Testing is also a continuing process. First, the input competence of the trainee needs to be assessed to determine the existence of all the competences which are prerequisite to the mastering of the learning tasks. In order to provide for individual variations in learning style, learning rate, interests, need, and ability have to be diagnosed. Finally, instruments have to be introduced to measure the intermediate and terminal performance of the teacher trainee. The data gathered from our continuous assessment and final testing become the feedback information which we will use to introduce changes in the system.

Change to Improve

The information which is collected as the outcome of all the monitoring and evaluation strategies will become the basis upon which to bring about changes and adjustments in the system and which will lead to the improvement of both the system and the performance of the trainee. The need to change by design is a system concept and a practice which for many of us is a difficult requirement to accept and to fulfill. However, this self-adjusting characteristic of change by design of both development and implementation is probably the most important aspect of the system approach.

Application

The methodology described in this article can be looked upon as a plan for research in teacher education programs. Gage[8] noted that we have research on teacher education when teachers' behavior serves as the dependent variable and teacher education programs as the independent variables. The design procedure described in this article is of this kind. The other kind of research is on teacher effectiveness when the teachers' behavior serves as independent variables and the behavior of the learners is the dependent variable. For this second kind of research, the systems approach can also be used. In this second case, a statement of performance objectives formulated for the learner becomes the criterion by which to measure the effectiveness of the instructional strategies designed and applied by the teacher in the classroom.

The methodology, the structures and strategies of the systems approach can be applied, furthermore, to the evaluation of existing systems of teacher education. This evaluation application of the systems approach is usually referred to as systems analysis. Systems analysis proceeds by asking such questions as: Is the purpose of the program to be evaluated clearly stated? Is it based on an observation and analysis of teacher performance? Are objectives specified with a high enough degree of specificity? Are they stated on measurable terms? Has it been determined what specific tasks does the future teacher have to master? Have adequate and appropriate-to-tasks alternatives been considered in content, learning experiences, in motivation strategies, and in components? And so forth. As an outcome of his work, the analyst will identify components, functions, and processes which are missing or which do not make adequate contributions toward the objectives of the system and will pinpoint those aspects which are really not needed and serve something other than the purpose of the system. He may also identify more economical ways and means of operating the system.

The systems approach has exceptional value as a tool for design, and in its application promises extraordinary potential for improving and stabilizing at a high professional level the training of foreign language teachers.

[8] N. L. Gage, "An Analytical Approach to Research on Instructional Methods," *Phi Delta Kappan*, Vol. XLIX, No. 10 (June, 1968), pp. 601–606.

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